

**CABLE AND HARNESS
COAXIAL**

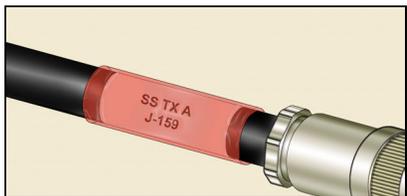


COAXIAL

Coaxial is an engineered cable product, typically supplied in the form of a central conductor insulated by a dielectric material, held in concentric orientation to a conductive tubing or sheathing that serves both as an EMI/RFI shield and as a return circuit path.

Coaxial systems are available in different technologies, ranging from flexible, insulated cable; to semi-rigid and rigid metallic sheathed.

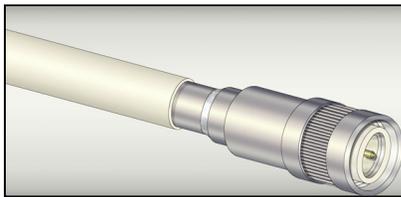
The selection of a particular coaxial cable technology involves the careful consideration of the specific electrical, mechanical, and environmental requirements of the project.



**PREFERRED
FLEXIBLE CABLE**

Cable dimensions and layout meet design requirements, with smooth bends and sufficient stress relief. Connector backshell is properly assembled and torqued. Cable insulation jacket is smooth and continuous, shield properly secured.

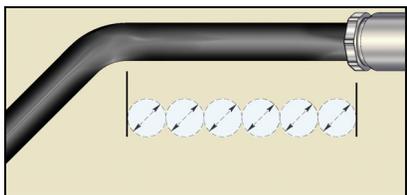
[NASA-STD-8739.4 \[19.6.1.f \]](#)



**PREFERRED
SEMI-RIGID / RIGID CABLE**

Completed cable meets dimensional and layout requirements, with smooth surface, bends, uniform diameter, and sufficient stress relief. Connectors exhibit properly formed solder / weld fillets and are contamination / corrosion-free.

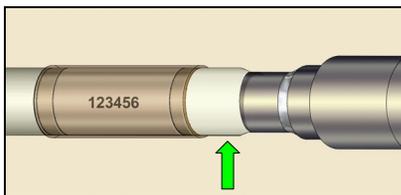
[NASA-STD-8739.4 \[19.6.1.f \]](#)



**MANDATORY
CABLE TERMINUS ALIGNMENT**

A minimum straight length of six (6) cable diameters is required at each finished cable end to allow for clearance and strain relief, unless specified otherwise in the engineering documentation.

[Best Workmanship Practice](#)



**MANDATORY
COATING / FINISH**

In applications requiring the cable assembly to be coated or painted, the finish shall be applied to the outer sheath only, and shall stop at least 5 mm (0.20 in.) from the back of the connector. The connector shall not be coated or painted.

[Best Workmanship Practice](#)

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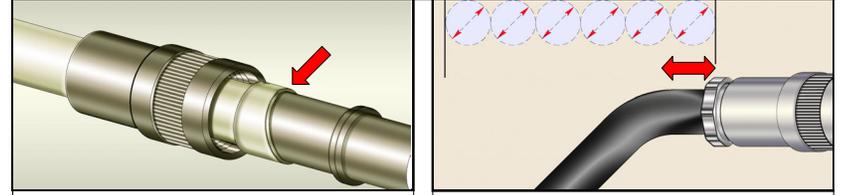
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**CABLE AND HARNESS
COAXIAL (cont.)**



**UNACCEPTABLE
IMPROPER COATING / PAINT**

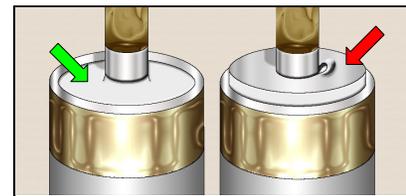
The coating has been improperly applied, resulting in interference during assembly and mating.

[Best Workmanship Practice](#)

**UNACCEPTABLE
IMPROPER TERMINUS SPACING**

The termination exhibits an improper minimum straight section length between the connector body and start of nearest bend. This may impede assembly / mating, reduce strain relief, or increase cable impedance.

[Best Workmanship Practice](#)



**UNACCEPTABLE
PROTRUDING DIELECTRIC**

Care shall be exercised to minimize the protrusion or melting of the dielectric as a result of overheating during tinning and soldering operations.

[Best Workmanship Practice](#)

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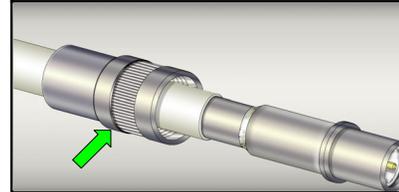
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CABLE AND HARNESS
COAXIAL (cont.)

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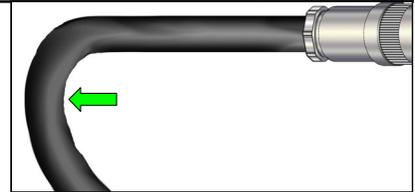
CABLE AND HARNESS
COAXIAL (cont.)



**MANDATORY
FLOATING NUTS**

Semi-rigid / rigid cable assemblies shall be designed with connectors with retractable (non-captive/floating) coupling nuts, reducing the possibility that the cable assembly will be in a state of tension / torsion during connector mating.

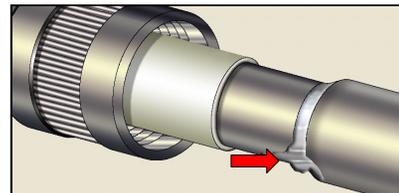
[Best Workmanship Practice](#)



**MANDATORY
MINIMUM BEND RADIUS**

Coaxial cables shall not be bent below the minimum recommended inside bend radius (6 diameters for flexible, 2 diameters for semi-rigid and rigid).

[Best Workmanship Practice](#)



**UNACCEPTABLE
EXCESS / IMPROPER SOLDER**

The solder termination between the connector and the rigid / semi-rigid cable sheath shall exhibit a fully wetted, concave, smooth, and continuous fillet which extends completely around the termination periphery.

[Best Workmanship Practice](#)



**UNACCEPTABLE
IMPROPER ASSEMBLY
CENTER CONTACT(S)**

Center contact location / orientation does not meet requirements for proper mating.

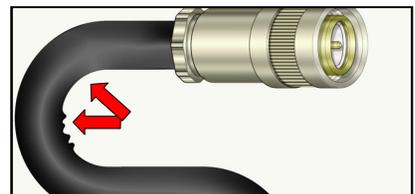
[NASA-STD-8739.4 \[19.6.2.f.3 \]](#)



**UNACCEPTABLE
IMPROPER ASSEMBLY
CONNECTOR**

The connector has not been assembled per the manufacturer's or engineering documentation. The connector body has been crimped by the center pin crimp tool, crushing the dielectric.

[NASA-STD-8739.4 \[19.6.2.f \]](#)



**UNACCEPTABLE
IMPROPER BEND RADIUS**

The cable has been bent below the minimum radius recommended, resulting in ripples and stretching in the cable sheath and possible cold-flow of the dielectric, resulting in increased attenuation and/or shorting.

[Best Workmanship Practice](#)

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